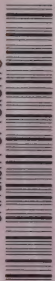


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RESEARCH REPORT.

Lewis, D.W.& Hussey I.

Distribution of time spent on various
Dental Services.

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DISTRIBUTION OF TIME
SPENT ON VARIOUS
DENTAL SERVICES

by

D. W. Lewis and I. Hussey

RESEARCH REPORT

*issued by the
Dental Health Care
Services Research Unit*

THE FACULTY OF DENTISTRY



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DISTRIBUTION OF TIME
SPENT ON VARIOUS
DENTAL SERVICES

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D. W. Lewis and I. Hussey

An Annotated Bibliography
prepared for the
Dental Health Care Services and Epidemiology
Research Unit
Faculty of Dentistry University of Toronto
July, 1975

This project was supported in full by
demonstration model grant DM 148 of
the Ontario Ministry of Health

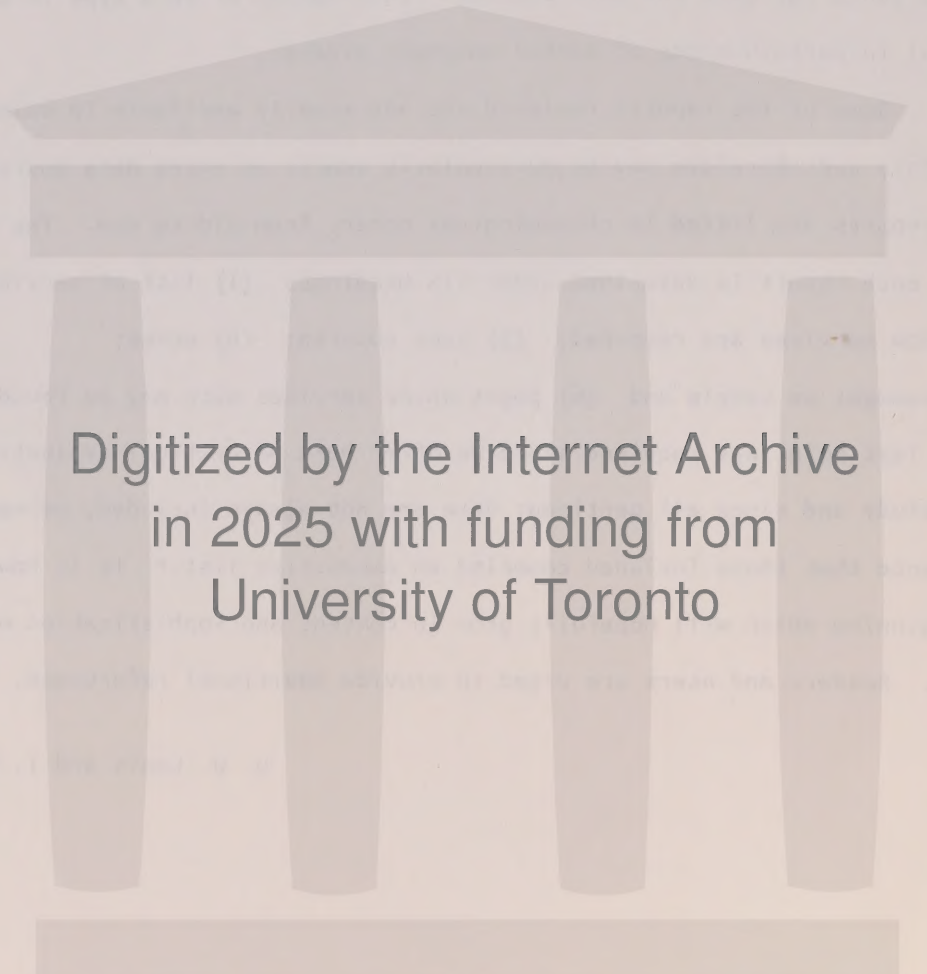
INTRODUCTORY COMMENTS

This report arose from the need by dental researchers interested in the distribution of time spent on various services by dental personnel on patients for data and data sources. Information of this type is often useful in certain types of dental manpower studies.

Some of the reports reviewed are not readily available in scientific journals and therefore may be particularly useful as extra data sources. The reports are listed in chronological order, from old to new. The material from each report is described under six headings: (1) list of services; (2) how services are recorded; (3) ages covered; (4) sexes; (5) comment on sample and (6) pages where services data may be found. This last point was required since we offer here no critical evaluation of any study and since all pertinent data are not always included, we make no pretence that those included comprise an exhaustive list.* It is however, a beginning which will hopefully grow in content and sophistication with time. Readers and users are urged to provide additional references.

D. W. Lewis and I. Hussey

* The computer simulation programs of dentist and dental auxiliary configurations at the University of Florida by R. S. MacKenzie and K. E. Kilpatrick contain dental service task mean times and distributions but these were not available to us in a useable format at the time this report was written. Also, H. Allred and M. H. Hobdell have gathered stop-watch and activity time samplings of dental tasks in the Experimental Dental Care Project at the London (England) Hospital Medical College.



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TASK FORCE ON DENTAL CARE COSTS. MINISTRY OF HEALTH AND
ONTARIO DENTAL ASSOCIATION. Criteria and arrangements that could be
established for a regular review of the Ontario Dental Association Fee
Schedule; (a study prepared for The Task Force on Dental Care Costs,
Ontario Dental Association by) Urwick, Currie and Partners Limited,
Toronto: Urwick, Currie and Partners Limited, March 1971

1) LIST OF SERVICES

Examination, Diagnosis,	Surgical
Radiographic interpretation	Periodontic
Preventive	Orthodontic
Basic restorative services	Away from chair
Restorative - extensive	Other services
Prosthetic	
Endodontic	

2) HOW SERVICES* ARE RECORDED

- a) Mean percentage of time spent on major categories of services
rendered, by organization type and by year of graduation of
dentist and by size of city.

* Time in minutes and fees charged for services estimates are also given.

3) AGES COVERED

Not specified

4) SEXES

Male	()
Female	()
Combined sexes	(X)

5) COMMENT ON SAMPLE

The objective of the study is to develop and recommend criteria and
arrangements that could be established as a basis for a regular review of
the Ontario Dental Association fee schedule. This study was done in four
phases: The Cost Structure of Dentistry; Criteria For a Review of the
Ontario Dental Association Fee Schedule; The Structure of The Fee Schedule;
the Fee Administration System.

A list of all general practitioners and all certified specialists
registered with the Royal College of Dental Surgeons of Ontario was obtained
from the Ontario Dental Association's records and code numbers were assigned
to all dentists on this list, considered to be in practice as of August, 1970.
(General Census of Ontario Practitioners) and a survey questionnaire was sent
to all listed dentists.

The Ontario Dental practitioners were identified in a range of classes such as fee rates, percentage of time spent on different services, time in minutes to perform different services, productivity, cost which influences net income and their relative significance. Other factors that were taken into consideration were those that determine the characteristics of a dental practice such as: dentist's year of graduation, the localization of his practice, the form of organization of his practice and his usage of auxiliary personnel.

A random sample was designed and used as the basis for statistical analysis. A 10% sample from each of the seven groups of years of graduation was obtained for the random sample. 31% of the total population of 2,670 general practitioners (General Census) returned usable questionnaires; this rate of response was insufficient to justify confidence in the results of any statistical analysis of the general census data. The rate of response from dentists included in the random sample was 73%; 196 usable returns were obtained from the sample of 270; and for the groups of dentists of most interest, those in practice 3-35 years, the response rate was 86%. This is probably sufficient to avoid serious sampling error. Of 85 certified specialists, 36% completed questionnaires, this level of response does not permit reliable conclusions to be drawn.

6) PAGES WHERE SERVICES DATA MAY BE FOUND

- a) Table 4.v Percentage of time spent on major categories of service rendered by organization type. p. 26
- b) Table 4.vi Percentage of time spent on major categories of service rendered by year of graduation. p. 27
- c) Table 4.vii Percentage of time spent on major categories of service rendered by size of city. p. 28
- d) Average mix of services rendered, percentage of time. p. 29
- e) Table 4.viii Percentage of time spent on major categories of service rendered solo practitioners, years of graduation 1950-1961. p. 30

Appendix XVI (General Census Data)

- f) Table 7 Percentage of time spent on major categories of service rendered by organization type. p. 150
- g) Table 8 Percentage of time spent on major categories of service rendered by year of graduation. p. 151
- h) Table 9 Percentage of time spent on major categories of service rendered solo practitioners, years of graduation 1950-1961. p. 152

AVERAGE MIX OF SERVICES RENDERED, RANDOM SAMPLE*

SERVICES	% OF TIME
BASIC RESTORATIVE SERVICES (Amalgam, silicate and resin restorations)	40
PREVENTIVE SERVICES (Scaling and polishing, and topical fluoride application)	14
EXAMINATION, DIAGNOSIS, RADIOGRAPHIC INTERPRETATION	12
PROSTHETIC (Complete and partial dentures)	10
EXTENSIVE RESTORATIONS (Fixed bridge restorations, gold inlays, crowns)	8
SURGICAL	7
AWAY FROM THE CHAIR	7
OTHER	2
TOTAL	100

* Data taken from p. 29 of the Ontario Dental Association. Criteria and arrangements that could be established for a regular review of the Ontario Dental Association Fee Schedule; (a study prepared for the Task Force on Dental Care Costs, Ontario Dental Association by) Urwick, Currie and Partners Limited, Toronto: Urwick, Currie and Partners Limited, March 1971

MEAN PERCENTAGE OF TIME SPENT ON MAJOR CATEGORIES OF SERVICES RENDERED

Random Sample*

Services	By Organization Type				By Year of Graduation				By Population			
	Solo Pract.	Solo With Assoc.	Group Sharing All Costs	Group Sharing Some Costs	1962 to 1970	1950 to 1961	1935 to 1949	Before 1935	Under 10,000	10,000 to 30,000	30,000 to 100,000	Over 100,000
No. of respondents	104	13	5	9	55	55	21	6	17	17	23	77
Examination, Diagnosis												
X-Rays Interpretation	13	10	11	12	14	12	10	11	12	11	13	12
Preventive	13	17	20	11	11	14	16	13	-	-	-	-
Basic Restorative												
Services	38	31	44	42	42	36	36	26	40	39	40	37
Restorative-Extensive	7	6	2	8	3	8	7	11	-	-	-	-
Scaling and Polish.	-	-	-	-	-	-	-	-	7	11	8	10
Prosthetic	8	16	10	8	6	10	9	13	-	-	-	-
Endodontic	2	2	-	3	1	2	1	1	-	-	-	-
Surgical	7	7	6	7	7	6	8	11	15	8	8	5
Periodontic	2	3	1	2	1	2	3	1	-	-	-	-
Orthodontic	1	2	1	2	-	1	2	-	-	-	-	-
Away from Chair	7	6	5	2	6	6	6	12	6	6	5	7
Other Services	2	-	-	3	9	3	2	1	20	25	26	29
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100

* Data taken from tables 4.v, 4.vi and 4.vii of the Ontario Dental Association. Criteria and arrangements that could be established for a regular review of the Ontario Dental Association Fee Schedule; (a study prepared for the Task Force on Dental Care Costs, Ontario Dental Association by) Urwick, Currie and Partners Limited, Toronto: Urwick, Currie and Partners Limited, March 1971

PERCENTAGE OF TIME SPENT ON MAJOR CATEGORIES OF SERVICE RENDERED*

Solo Practitioners, Years of Graduation 1950-1961

Services	Profile	Mean %	Std. Dev.	Std. Error
Amalgam, silicate and resin restorations	under 20% of office time 5 21-30% 6 31-40% 10 41-50% 14 over 50% 8 Total respondents 43	38%	14%	2.1%
Examination, diagnosis, radiographic interpretation	under 10% of office time 22 11-20% 14 over 20% 7 Total respondents 43	12%	7%	1.1%
Topical fluoride application	under 10% of office time 41 11-20% 1 over 20% 1 Total respondents 43	3%	7%	1.0%
Scaling and polishing	under 10% of office time 28 11-20% 13 over 20% 2 Total respondents 43	9%	7%	1.1%
Complete dentures	under 10% of office time 38 over 10% 5 Total respondents 43	5%	7%	.7%
Partial dentures	under 10% of office time 42 over 10% 1 Total respondents 43	3%	3%	.4%
Surgical	under 10% of office time 35 11-20% 8 Total respondents 43	6%	6%	.8%
Away from the chair	under 10% of office time 33 over 10% 10 Total respondents 43	7%	5%	.8%

*Data taken from Table 4.viii of the Ontario Dental Association. Criteria and arrangement that could be established for a regular review of the Ontario Dental Association Fee Schedule; (a study prepared for the Task Force on Dental Care Costs, Ontario Dental Association by) Urwick, Currie and Partners Limited, Toronto: Urwick, Currie and Partners Limited, March 1971

LOTZKAR, S., JOHNSON, D. W., AND THOMPSON, M. B. Experimental program in expanded functions for dental assistants: Phase 1, base line and phase 2, training. J Am Dent Assoc 82:101-122, 1971

1) LIST OF SERVICES

Admission Procedures	Denture Prosthesis
Basic Procedures	Oral Surgery
Preventive Dentistry	Endodontics
Operative Dentistry	Pedodontics
Crown and Bridge	

2) HOW SERVICES* ARE RECORDED

- a) Percent distribution of time by procedure category
- b) Number of procedures performed
- c) Total time in minutes to perform procedures

* Average mean time (in minutes) estimates and quality standards estimates are also given.

3) AGES COVERED

Not specified

4) SEXES

Males	()
Females	()
Combined sexes	(X)

5) COMMENT ON SAMPLE

This research program, extending over a 5 1/2 year period, was carried out by the Division of Dental Health at the Dental Manpower Development Center in Louisville, Kentucky, to investigate the feasibility of expanding the functions of chairside dental assistants in order to increase the dentists' productivity. In phase 1 base-line period, 7 dentists worked in a conventional manner with a full-time dental assistant who performed only those duties normally assigned; about 85% of the procedures were performed by 4 dentists participating in the initial base-line period and the other 3 dentists' data from the second group, since it was only a relatively small proportion of the total base-line work, was combined with that from the first group. In the phase 2 training, 32 dental assistants were trained for approximately one year. Of these, 16 had completed a one-year formal course in dental assisting, 14 had received training equivalent to the 104-hour course sponsored by the American Dental Assistants Association and 2 had on-the-job training with several years experience in dental assisting. The training program was conducted in two sub-phases: Phase

2a was designed to teach the dental assistants to perform the additional assigned functions in a classroom-laboratory complex under controlled conditions. Phase 2b, the clinical practicum, consisted of the practical application, under controlled clinical conditions with a selected group of patients, of the knowledge and skills acquired, staff dentists provided the necessary instruction and performed the nondelegated procedures.

6) PAGES WHERE SERVICES DATA MAY BE FOUND

- a) Table 3 Distribution of chairside time by procedure category,
phase 1 base line. p. 109

The data for this study is found on page 10

LOTZKAR, S., JOHNSON, D. W., AND THOMPSON, M. B. Experimental program in expanded functions for dental assistants: Phase 3 experiment with dental teams. J Am Dent Assoc 82:1067-1082, 1971

1) LIST OF SERVICES

Admission Procedures
Basic Procedures
Preventive Dentistry
Operative Dentistry
Crown and Bridge

Denture Prosthesis
Oral Surgery
Endodontics
Pedodontics

2) HOW SERVICES* ARE RECORDED

- a) Percent distribution of time by procedure category
- b) Number of procedures performed
- c) Total time in minutes to perform procedures

* Average mean time (in minutes) estimates, quality standards and dental team productivity estimates are also given.

3) AGES COVERED - Not specified

4) SEXES

Male ()
Female ()
Combined sexes (X)

5) COMMENT ON SAMPLE

A previous report¹ presented phases 1 and 2 of a three-phase 5 1/2 year-period study to investigate the feasibility of delegating additional duties to chairside dental auxiliaries. In phase 1, dentists worked in a conventional manner with a full-time dental assistant who performed only those duties normally assigned. During phase 2, dental assistants were taught both the theory and the clinical application of the procedures that they were to perform in place of the dentist; the training period was divided into a classroom-laboratory portion (phase 2a) and a clinical portion (phase 2b). This report presents the findings of phase 3, in which the dentists, who worked as heads of dental teams with varying numbers of trained assistants, delegated about two fifths of their work to these auxiliaries. This experimental phase of the study extended over a period of about three years. 6 of the 7 dentists who participated in the base line, remained with the program in phase 3. Phase 3 was divided into 12 stages of about 12 weeks each. During the various stages assistants were rotated among dentists to vary the composition of dental teams.

¹ Lotzkar, S., Johnson, D. W., and Thompson, M. B. Experimental program in expanded functions for dental assistants. Phase 1 base line and phase 2 training. JADA 82:101, January 1971

6) PAGES WHERE SERVICES DATA MAY BE FOUND

- a) Table 2 Number of chairside procedures performed and time
 required by procedure category, phase 3 experiment,
 August 1967 - June 1970. p. 1070

The data for this study is found on page 10

NUMBER OF CHAIRSIDE PROCEDURES PERFORMED
AND
TIME REQUIRED BY PROCEDURE CATEGORY

<u>SERVICE</u>	<u>PHASE 1 BASE LINE*</u>			<u>PHASE 3 EXPERIMENT**</u>		
	<u>Number Performed</u>	<u>Total Time (in min.)</u>	<u>% Distri- bution of Time</u>	<u>Number Performed</u>	<u>Total Time (in min.)</u>	<u>% Distri- bution of Time</u>
All Chairside Proced.	55,214	328,430	100.0	115,930	732,529	100.0
Admission Procedures	5,411	40,269	12.3	16,784	124,460	17.0
Basic Procedures	12,705	54,221	16.5	23,008	93,322	12.7
Preventive Dentistry	3,265	34,679	10.6	10,491	140,671	19.2
Operative Dentistry	21,700	105,132	32.0	50,552	273,418	37.3
Crown and Bridge	1,826	19,754	6.0	163	3,871	0.5
Denture Prosthesis	3,934	40,340	12.3	7,509	52,824	7.2
Oral Surgery	5,579	21,813	6.6	6,029	25,504	3.5
Endodontics	320	4,542	1.4	723	8,435	1.2
Pododontics	474	7,680	2.3	671	10,024	1.4

* Data taken from Table 3, Lotzkar, S., Johnson, D. W. and Thompson, M. B. Experimental program in expanded functions for dental assistants: Phase 1 base line and phase 2 training.

J Am Dent Assoc 82:101-122, 1971

**Data taken from Table 2, Lotzkar, S., Johnson, D. W. and Thompson, M. B. Experimental program in expanded functions for dental assistants: Phase 3 experiment with dental teams.

J Am Dent Assoc 82:1067-1082, 1971

CANADA. HEALTH PROGRAMS BRANCH. HEALTH AND WELFARE CANADA. Demand for dental services in affluent communities. Ontario, 1971

1) LIST OF SERVICES (See attached Appendix A for description)

Emergency Services	Scaling/Polish
Examinations	Occlusal Adjustments
Models	Perio. Surg. Serv.
Radiographs	Periodontal Other
Lab. Tests	Endodontic
Consult/Report	Restn Plastic
Maint. Routine	Restn Other
Topical Fluoride	Denture Complete
Hygiene Instruction	Denture Partial
Ortho. G. P.	Denture Refit
Extractions	Denture Misc
Surgery Other	

2) HOW SERVICES* ARE RECORDED

- a) In tables 4, 5, E3, E4. Percentage distribution of time requirements for services by age group and sex.
- b) In tables D3, D4, E9, E10. Time requirements (minutes) per person year exposure by age group and sex.

* Cost and completed services estimates are also given.

3) AGES COVERED

Tables 4, 5, D3, D4		Tables E3, E4, E9, E10
0 - 4	35 - 39	0 - 13
5 - 9	40 - 44	14 - 16
10 - 14	45 - 49	17 - 24
15 - 19	50 - 54	25 - 34
20 - 24	55 - 59	35 - +
25 - 29	60 - 64	
30 - 34	65 - +	

4) SEXES

Male	(X)
Female	(X)
Combined sexes	()

Demand for dental services in affluent communities. Ontario, 1971

5) COMMENT ON SAMPLE

The study was carried out in two communities in southern Ontario. The information was provided by local participating dentists, who were considered as representative of general practitioners as a whole.

Communities with populations of about 100,000 were considered to provide a broad and representative picture of the types of dental services demanded and received in the province; those communities had age and sex distributions approximately equal to those of Canada as a whole; and the dentist-population ratios were better than the national average.

Dentists were asked to supply information of a maximum number of 15 sets of patients' records who had been under their care for a period of at least 5 years. In location 1 with 30 dentists, 19 supplied data; in location 2 with 32 dentists, 16 supplied data. In total, the study is based upon data derived from 227 male and 244 female treatment records covering 1,598 and 1,726 person year exposures*, respectively.

Data on the fees charged or times required for these services were not required. Estimates of the fees and the times were made on the basis of the Schedule of Fees of the Ontario Dental Association (effective September 1, 1965), and the Relative Value Method of Fee Determination, as published in the "Transactions", of the Canadian Dental Association, 1965, pp. 22-39, with a value of 12 minutes assigned to each unit time. When a specific time was indicated in the "Schedule of Fees", referred to above, this latter value took precedence and was recorded. Where a range of time was specified in either of the above, the lowest value was used.

* Person year exposure (P/Y/E) was counted for each calendar year spanned by the treatment record.

6) PAGES WHERE SERVICES DATA MAY BE FOUND

- a) Table 4 Males, Time requirements, Percentage distributions
by age group. p. 19
- b) Table 5 Females, Time requirements, Percentage distributions
by age group. p. 20
- c) Table D3 Males, Time requirements (minutes) per person year
exposure by age group. p. 64
- d) Table D4 Females, Time requirements (minutes) per person year
exposure by age group. p. 65
- e) Table E3 Males, Time requirements, Percentage distributions,
by age. p. 73
- f) Table E4 Females, Time requirements, Percentage distributions,
by age. p. 74

Demand for dental services in affluent communities. Ontario, 1971

- g) Table E9 Males, Time requirements (minutes) per person year
 exposure by age group. p. 79
- h) Table E10 Females, Time requirements (minutes) per person year
 exposure by age group. p. 80

The data for this study is found on page 25

CANADA. HEALTH PROGRAMS BRANCH. HEALTH AND WELFARE CANADA. Demand for dental services in affluent communities. Atlantic Region, 1974

1) LIST OF SERVICES (See attached Appendix A for description)

Emergency Services	Scaling/Polish
Examinations	Occlusal Adjustments
Models	Perio. Surg. Serv.
Radiographs	Periodontal Other
Lab. Tests	Endodontic
Consult/Report	Restn Plastic
Maint. Routine	Restn Other
Topical Fluoride	Denture Complete
Hygiene Instruction	Denture Partial
Ortho. G. P.	Denture Refit
Extractions	Denture Misc.
Surgery Other	

2) HOW SERVICES^{*} ARE RECORDED

- a) Percentage distribution of time requirements for services by age group and sex
- b) Total minutes per person year exposure by age group and sex

* Cost and completed services estimates are also given.

3) AGES COVERED

Tables 3 and 4		Tables B3 and B4
0 - 4	35 - 39	0 - 13
5 - 9	40 - 44	14 - 16
10 - 14	45 - 49	17 - 24
15 - 19	50 - 54	25 - 34
20 - 24	55 - 59	35 - +
25 - 29	60 - 64	
30 - 34	65 - +	

4) SEXES

Male	(X)
Female	(X)
Combined Sexes	()

5) COMMENT ON SAMPLE

The information was collected from communities that provided a broad and representative picture of the types of dental services demanded and received in the province. The communities were located in the provinces of

Newfoundland, Nova Scotia and New Brunswick. Individual participating dentists sent data on the services provided to a maximum number of 15 patients who had been under their care for a period of at least 5 years. On this basis, it was expected that data on dental services would be representative of a high standard of dental care and to get a real picture of the patients' effective demand for dental health services. The study is based upon data derived from 210 male and 296 female treatment records, covering 1,820 and 2,739 person year exposures*, respectively.

Estimates of the times were made on the basis of the Schedule of Fees of the Ontario Dental Association (effective September 1, 1965), and the Relative Value Method of Fee Determination, as published in the "Transactions" of the Canadian Dental Association, 1965, pp. 22-39, with a value of 12 minutes assigned to each unit of time. When a specified time was indicated in the "Schedule of Fees", referred to above, this latter value took precedence and was recorded. Where a range of time was specified in either of the above, the lowest value was used.

* Person year exposure (P/Y/E) was counted for each calendar year spanned by the treatment record.

6) PAGES WHERE SERVICES DATA MAY BE FOUND

- a) Table 3 Males, Time requirements, Percentage distributions,
Total minutes per person year exposure, by age. p. 13
- b) Table 4 Females, Time requirements, Percentage distributions,
Total minutes per person year exposure, by age. p. 14
- c) Table B3 Males, Time requirements, Percentage distributions,
Total minutes per person year exposure by age. p. 29
- d) Table B4 Females, Time requirements, Percentage distributions,
Total minutes per person year exposure by age. p. 30

The data for this study is found on page 25

CANADA. HEALTH PROGRAMS BRANCH. HEALTH AND WELFARE CANADA. Demand for dental services in affluent communities. Manitoba, 1974

1) LIST OF SERVICES (See attached Appendix A for description)

Emergency Services	Scaling/Polish
Examinations	Occlusal Adjustments
Models	Perio. Surg. Serv.
Radiographs	Periodontal Other
Lab. Tests	Endodontic
Consult/Report	Restn Plastic
Maint. Routine	Restn Other
Topical Fluoride	Denture Complete
Hygiene Instruction	Denture Partial
Ortho. G. P.	Denture Refit
Extractions	Denture Misc.
Surgery Other	

2) HOW SERVICES* ARE RECORDED

- a) Percentage distribution of time requirements for services by age group and sex
- b) Total minutes per person year exposure by age group and sex

* Cost and completed services estimates are also given.

3) AGES COVERED

Tables 3 and 4

Tables B3 and B4

0 - 4	35 - 39	0 - 13
5 - 9	40 - 44	14 - 16
10 - 14	45 - 49	17 - 24
15 - 19	50 - 54	25 - 34
20 - 24	55 - 59	35 - +
25 - 29	60 - 64	
30 - 34	65 - +	

4) SEXES

Male	(X)
Female	(X)
Combined Sexes	()

5) COMMENT ON SAMPLE

The information was collected from communities that provided a broad and representative picture of the types of dental services demanded and received in the province. Individual participating dentists sent data on

Demand for dental services in affluent communities. Manitoba, 1974

the services provided to a maximum number of 15 patients who had been under their care for a period of at least 5 years. On this basis, it was expected that data on dental services would be representative of a high standard of dental care and to get a real picture of the patients' effective demand for dental health services. The study is based upon data derived from 38 male and 39 female treatment records, covering 447 and 389 person year exposures*, respectively.

Estimates of the times were made on the basis of the Schedule of Fees of the Ontario Dental Association (effective September 1, 1965), and the Relative Value Method of Fee Determination, as published in the "Transactions" of the Canadian Dental Association, 1965, pp.22-39, with a value of 12 minutes assigned to each unit of time. When a specified time was indicated in the "Schedule of Fees", referred to above, this latter value took precedence and was recorded. Where a range of time was specified in either of the above, the lowest value was used.

* Person year exposure (P/Y/E) was counted for each calendar year spanned by the treatment record.

6) PAGES WHERE SERVICES DATA MAY BE FOUND

- a) Table 3 Males, Time requirements, Percentage distributions,
Total minutes per person year exposure, by age. p. 13
- b) Table 4 Females, Time requirements, Percentage distributions,
Total minutes per person year exposure, by age. p. 14
- c) Table B3 Males, Time requirements, Percentage distributions,
Total minutes per person year exposure by age. p. 29
- d) Table B4 Females, Time requirements, Percentage distributions,
Total minutes per person year exposure by age. p. 30

The data for this study is found on page 25

CANADA. HEALTH PROGRAMS BRANCH. HEALTH AND WELFARE CANADA. Demand for dental services in affluent communities. Alberta, 1974

1) LIST OF SERVICES (See attached Appendix A for description)

Emergency Services	Scaling/Polish
Examinations	Occlusal Adjustments
Models	Perio. Surg. Serv.
Radiographs	Periodontal Other
Lab. Tests	Endodontic
Consult/Report	Restn Plastic
Maint. Routine	Restn Other
Topical Fluoride	Denture Complete
Hygiene Instruction	Denture Partial
Ortho. G. P.	Denture Refit
Extractions	Denture Misc.
Surgery Other	

2) HOW SERVICES* ARE RECORDED

a) Percentage distribution of time requirements for services by age group and sex

b) Total minutes per person year exposure by age group and sex

* Cost and completed services estimates are also given.

3) AGES COVERED

Tables 3 and 4

Tables B3 and B4

0 - 4	35 - 39	0 - 13
5 - 9	40 - 44	14 - 16
10 - 14	45 - 49	17 - 24
15 - 19	50 - 54	25 - 34
20 - 24	55 - 59	35 - +
25 - 29	60 - 64	
30 - 34	65 - +	

4) SEXES

Male	(X)
Female	(X)
Combined Sexes	()

5) COMMENT ON SAMPLE

The information was collected from communities that provided a broad and representative picture of the types of dental services demanded and received in the province. Individual participating dentists sent data on

Demand for dental services in affluent communities. Alberta, 1974

the services provided to a maximum number of 15 patients who had been under their care for a period of at least 5 years. On this basis, it was expected that data on dental services would be representative of a high standard of dental care and to get a real picture of the patients' effective demand for dental health services. The study is based upon data derived from 116 male and 138 female treatment records, covering 1,094 and 1,215 person year exposures*, respectively.

Estimates of the times were made on the basis of the Schedule of Fees of the Ontario Dental Association (effective September 1, 1965), and the Relative Value Method of Fee Determination, as published in the "Transactions" of the Canadian Dental Association, 1965, pp. 22-39, with a value of 12 minutes assigned to each unit of time. When a specified time was indicated in the "Schedule of Fees", referred to above, this latter value took precedence and was recorded. Where a range of time was specified in either of the above, the lowest value was used.

* Person year exposure (P/Y/E) was counted for each calendar year spanned by the treatment record.

6) PAGES WHERE SERVICES DATA MAY BE FOUND

- a) Table 3 Males, Time requirements, Percentage distributions,
Total minutes per person year exposure, by age. p. 13
- b) Table 4 Females, Time requirements, Percentage distributions,
Total minutes per person year exposure, by age. p. 14
- c) Table B3 Males, Time requirements, Percentage distributions,
Total minutes per person year exposure, by age. p. 29
- d) Table B4 Females, Time requirements, Percentage distributions,
Total minutes per person year exposure, by age. p. 30

The data for this study is found on page 25

CANADA. HEALTH PROGRAMS BRANCH. HEALTH AND WELFARE CANADA. Demand for dental services in affluent communities. British Columbia, 1974

1) LIST OF SERVICES (See attached Appendix A for description)

Emergency Services	Scaling/Polish
Examinations	Occlusal Adjustments
Models	Perio. Surg. Serv.
Radiographs	Periodontal Other
Lab. Tests	Endodontic
Consult/Report	Restn Plastic
Maint. Routine	Restn Other
Topical Fluoride	Denture Complete
Hygiene Instruction	Denture Partial
Ortho. G. P.	Denture Refit
Extractions	Denture Misc.
Surgery Other	

2) HOW SERVICES* ARE RECORDED

a) Percentage distribution of time requirements for services by age group and sex

b) Total minutes per person year exposure by age group and sex

* Cost and completed services estimates are also given.

3) AGES COVERED

Tables 3 and 4

Tables B3 and B4

0 - 4	35 - 39	0 - 13
5 - 9	40 - 44	14 - 16
10 - 14	45 - 49	17 - 24
15 - 19	50 - 54	25 - 34
20 - 24	55 - 59	35 - +
25 - 29	60 - 64	
30 - 34	65 - +	

4) SEXES

Male	(X)
Female	(X)
Combined Sexes	()

5) COMMENT ON SAMPLE

The information was collected from communities that provided a broad and representative picture of the types of dental services demanded and received in the province. Individual participating dentists sent data on

Demand for dental services in affluent communities. British Columbia

the services provided to a maximum number of 15 patients who had been under their care for a period of at least 5 years. On this basis, it was expected that data on dental services would be representative of a high standard of dental care and to get a real picture of the patients' effective demand for dental health services. The study is based upon data derived from 149 male and 153 female treatment records, covering 1,505 and 1,444 person year exposures*, respectively.

Estimates of the times were made on the basis of the Schedule of Fees of the Ontario Dental Association (effective September 1, 1965), and the Relative Value Method of Fee Determination, as published in the "transactions" of the Canadian Dental Association, 1965, pp. 22-39, with a value of 12 minutes assigned to each unit of time. When a specified time was indicated in the "Schedule of Fees", referred to above, this latter value took precedence and was recorded. Where a range of time was specified in either of the above, the lowest value was used.

* Person year exposure (P/Y/E) was counted for each calendar year spanned by the treatment record.

6) PAGES WHERE SERVICES DATA MAY BE FOUND

- a) Table 3 Males, Time requirements, Percentage distributions,
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- d) Table B4 Females, Time requirements, Percentage distributions,
Total minutes per person year exposure, by age. p. 30

The data for this study is found on page 25

APPENDIX A

CLASSIFICATION OF SERVICES: DESCRIPTION

DESCRIPTION OF CLASSIFICATIONS USED IN ALL TABLES
CONTAINING DATA CLASSIFIED BY SERVICE TYPE

Name of Service(s)	Description
Emergency Service	Professional visits out of office or office hours and hospital visits were included with emergencies specified as such. Drugs administered, provided or dispensed.
Examinations	Complete examinations of new patients, including examinations for periodontic and endodontic services. Does not include maintenance care (recall) examinations which are grouped with Maint. Routine below.
Models	Models when specified as required for diagnosis or patient education.
Radiographs	All types of radiographs.
Lab. Tests	Biopsy, cytological and caries susceptibility tests.
Consult/Report	Consultations with patient or professional, nutritional counselling, treatment planning, and written reports.
Maint. Routine	Maintenance care (recall) appointments which include the reexamination of soft and hard tissues, the occlusion, and the routine scaling and polishing associated with recall appointments.
Topical Fluoride	Applications to deciduous, mixed or permanent dentitions.
Hygiene Instruct.	Includes oral hygiene and oral physiotherapy instruction.

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APPENDIX A (Cont'd.)

Name of Service(s)	Description
Endodontic	All endodontic services except examination and surgical services included under Examinations or Surgery Other. Because preparation of a tooth for treatment, pulpectomy, biomechanical preparation of root canal, chemotherapeutic treatment, and obliteration of root canal were all recorded as separate completed services, and as various combinations of these services are required to complete the endodontic treatment for a single tooth, the values given in the Tables for completed services are not interpretable in terms of numbers of different teeth receiving endodontic treatment.
Restn Plastic	Includes all types of amalgam, silicate, and direct resin restorations.
Restn Other	Includes gold foil, gold and fused porcelain inlays and crowns, acrylic crowns, veneer crowns, all types of pontics and repairs to inlays, crowns and bridges.
Denture Complete	Includes immediate dentures.
Denture Partial	All types.
Denture Refit	Includes all types - relining, rebasing and repairs.
Denture Misc.	Denture adjustments, obturators, maxillo facial prosthesis are in this group.

APPENDIX A (Cont'd.)

Name of Service(s)	Description
Ortho. G.P.*	Fixed and removable space maintainers and acrylic appliances provided by a G.P.
Extractions*	All types including unerupted, impacted, and supernumerary teeth.
Surgery Other*	All other types of surgical services, excluding only periodontal and endodontic surgery peculiar to these areas. (See Perio. Surg. Serv. and Endodontic below.)
Scaling/Polish*	All scaling and polishing except that included under Maint. Routine.
Occlusal Adj.*	Includes all occlusal adjustments that were not specifically part of a denture adjustment.
Perio. Surg. Serv.*	Includes post-operative treatments.
Periodontal Other*	This group covers all periodontal services other than those previously included under Scaling/Polish, Occlusal Adj., or Perio. Surg. Serv.

* While limited specialist services were available within some of the specified community boundaries, specialists to provide these services were not readily available at all the locations surveyed.

TIME REQUIREMENTS, PERCENTAGE DISTRIBUTIONS, TOTAL MINUTES PER PERSON YEAR
EXPOSURE, AGES AND SEXES COMBINED, AND FOR CANADA, PROVINCES COMBINED* *

SERVICE	ATLANTIC PROVINCES	ONTARIO	MANITOBA	ALBERTA	BRITISH COLUMBIA	**CANADA**
Age	0-16	0-16	0-16	0-16	0-16	0-16
Emergency Service	.30	.06	.00	.00	.03	.08
Examinations	2.67	3.06	1.46	1.26	2.32	2.57
Models	.16	.43	.00	.35	2.98	.72
Radiographs	1.38	9.70	7.52	4.83	7.47	7.40
Lab Tests	.24	.12	.00	.00	.00	.10
Consult/Report	.00	.77	.00	.00	.00	.40
Maint. Routine	21.90	24.56	12.71	23.39	17.73	22.25
Topical Fluoride	2.34	1.73	6.92	3.84	16.55	4.55
Hygiene Instruct.	.14	.24	.06	.16	.50	.24
Ortho G. P.	1.58	.95	.70	2.99	.00	1.14
Extractions	5.61	3.12	6.11	6.95	3.08	4.15
Surgery Other	.22	.08	.00	.13	.13	.11
Scaling/Polish	.61	4.02	11.01	1.26	1.32	3.26
Occlusal Adj.	.00	.13	.00	.00	.00	.06
Perio. Surg. Serv.	.00	(4.17)	.00	.00	.00	(2.16)
Periodontal Other	.03	.05	.00	.00	.00	.03
Endodontic	1.49	.00	.40	.37	1.31	.48
Restn. Plastic	58.93	49.12	44.75	52.29	44.00	49.95
Restn. Other	2.02	1.37	6.42	1.59	2.57	2.00
Denture Complete	.00	.00	.00	.00	.00	.00
Denture Partial	.27	.51	.76	.51	.00	.42
Denture Refit	.00	.03	.00	.00	.00	.02
Denture Misc.	.00	.00	.00	.00	.00	.00
Total Per Cent	99.90	(**104.22**) 99.07	98.82	99.92	99.99	(**102.10**) 99.94
Total (Weighted) Minutes Per Person Years Experience	51.01	**94.41**	61.28	60.79	80.77	**79.68**

x Age and Provincial combination weights derived from Age Population Data of 1971 Census.

** Total % for Canada and Ontario adds to greater than 100 because original data published for Ontario exceeded 100.

* Data derived from Table B3 and B4 of the CANADA. HEALTH PROGRAMS BRANCH, HEALTH AND WELFARE CANADA. Demand for dental services in affluent communities, British Columbia, Alberta, Manitoba, Atlantic Regions, 1974, and Tables E3, E4, E9 and E10, Ontario, 1971.

PRINCE EDWARD ISLAND. DEPARTMENT OF HEALTH. DENTAL DIVISION. The Prince Edward Island Dental Manpower Study. Final Report; (study undertaken for the ... Department by) R. G. Romcke and D. W. Lewis. Charlottetown: The Department, July 1972

1) LIST OF SERVICES

Examination	Other Productive
X-Ray	Between patients and handwashing
Prophylaxis	Talk to patient
Topical Fluoride	Periodontal instruction
Anesthetic-Restoration	Dental Assistant Services
Anesthetic-Extraction	General business
Anesthetic-Restoration and Extraction	Idle - coffee
Rubber Dam	Idle - between
Cavity Preparation	Idle - waiting
Base	Idle - patient missing or late
Matrix	Idle - other
Insert and carve	Super. Hygienist
Polish filling	Other non-productive
Extraction	Non-productive time
Education	

2) HOW SERVICES* ARE RECORDED

- a) Percentage of time spent in different dental services
- b) Phases
- c) Percentage of non-productive time

* Productivity, work distribution patterns, time, quality of restorations, cost and benefits estimates are also given.

3) AGES COVERED

Not specified

4) SEXES

Male	()
Female	()
Combined sexes	(X)

5) COMMENT ON SAMPLE

This report is based on a two and one-half year study "to determine whether specially trained dental hygienists, who insert and finish restorations in cavities prepared by a dentist, can increase the productivity of a dentist to an extent that will make them economically worthwhile in a private dental practice". The study was carried out in six private dental offices and in a dental public health clinic for children which operated in three rural areas of

Prince Edward Island, Canada. In the Public Health Treatment Clinic all children 6 to 10 years of age were eligible for the dental health program. The participation rate was approximately 85%. Several criteria were used to measure productivity. The Work Sampling Form is used to record the precise activity of each operator at ten randomly selected times per hour; in a normal sixty day phase a total of 3,300 recordings were made, and this provides reliable estimates in the distribution of how the dentist and dental hygienists spend their time performing various procedures.

The study is divided into a number of phases (8), each of which evaluates the productivity of a particular dental team. (Table II, p. 12 shows personnel and equipment utilized in various study phases). Except for 2 phases all phases were based on children who were receiving comprehensive treatment for the first time. No number of children treated is given. In the six dental offices 2 dental hygienists worked for periods of approximately 3 months, and in each office the dentists kept detailed records of all procedures performed during a six week period preceding the arrival of the dental hygienist and similar records were kept during the 3 month period that the hygienist was present.

6) PAGES WHERE SERVICES DATA MAY BE FOUND

- a) Table VII Percentoge of dentist's time spent in selected activities. p. 19
- b) Table VIII Percentage of hygienist 1's time spent in various activities. p. 20
- c) Table IX Percentage of hygienist 4's time spent in various activities. p. 20
- d) Appendix E Summary of work sampling. Operator A. Percent of time.

PERCENTAGE OF DENTIST'S TIME SPENT IN SELECTED ACTIVITIES*

<u>SERVICE</u>	<u>PHASE</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	<u>VI</u>	<u>VII</u>	<u>IX</u>	<u>X</u>
PROPHY. FLUORIDE		15.4	16.3	2.0	1.3	0.1	0.0	0.9	1.5
CAVITY PREPARATION		11.4	11.3	20.2	23.2	22.4	21.1	27.5	19.1
BASE & MATRIX INSERT & CARVE & POLISH									
RESTORATION		31.3	25.0	9.9	7.1	5.0	3.4	11.9	9.7
NON-PRODUCTIVE TIME		22.0	27.1	36.3	40.6	40.6	46.2	39.1	43.1

* Data taken from table VII of the Prince Edward Island. Dental Division. Department of Health. The Prince Edward Island Dental Manpower Study. Final Report; (study undertaken for the ... Department by) R. G. Romcke and D. W. Lewis. Charlottetown, P. E. I. : The Department, July 1972

DENTAL MANPOWER STUDY. WORK SAMPLING SUMMARY. OPERATOR A. PERCENT OF TIME*

<u>ACTIVITY/PHASE</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	<u>VI</u>	<u>VII</u>	<u>IX</u>	<u>X</u>
EXAM	2.13	3.12	7.57	13.51	4.31	2.62	3.10	3.34
X-RAY	0.68	0.00	0.00	0.84	1.19	0.04	0.00	0.00
PROPHY	5.87	7.35	1.09	0.38	0.12	0.00	0.31	0.86
TOPICAL FL.	9.48	8.97	0.95	0.92	0.00	0.00	0.62	0.67
ANESTHETIC R	3.33	3.31	4.45	3.76	4.81	5.06	4.34	3.81
ANESTHETIC E	1.20	1.65	2.58	0.61	1.69	1.51	0.54	1.05
ANESTHETIC R + E	0.24	0.32	0.10	0.23	0.31	0.04	0.07	0.19
RUBBER DAM	7.52	5.17	8.13	6.22	10.93	5.59	4.26	5.91
CAVITY PERPARATION	11.37	11.32	20.20	23.19	22.42	21.05	27.54	19.07
BASE	5.32	4.42	2.65	0.92	0.81	0.79	3.02	2.19
MATRIX	1.54	0.97	0.07	0.23	0.31	0.17	0.15	0.19
INSERT AND CARVE	21.86	18.28	6.65	5.83	3.81	2.39	8.06	7.24
POLISH FILLING	2.57	1.33	0.56	0.15	0.06	0.04	0.69	0.10
EXTRACT	3.09	6.53	8.13	2.22	3.81	7.01	2.17	6.29
EDUCATION	0.00	0.03	0.35	0.23	0.06	0.13	0.00	0.00
OTHER PRODUCTIVE	1.65	0.42	0.10	0.00	0.00	0.00	0.15	0.00
BET. PAT. & HANDWASH	2.36	6.83	9.87	10.13	8.87	15.14	12.02	10.58
TALK TO PATIENT	0.17	0.29	0.03	0.07	0.00	0.08	0.15	0.19
PE. INSTRUCTION	0.00	0.13	0.00	0.07	0.06	0.17	0.15	0.19
D. A. SERV.	1.89	1.30	2.72	3.45	1.69	1.68	0.38	0.00
GENERAL BUSINESS	0.37	1.75	7.04	11.21	3.44	5.19	4.57	5.19
IDLE--COFFEE	0.37	0.48	0.03	0.14	0.00	0.00	0.00	0.00
IDLE--BETWEEN	8.93	2.21	1.27	2.07	3.25	4.84	2.48	3.62
IDLE--WAITING	5.67	10.80	9.09	6.37	9.68	9.55	9.07	12.01
IDLE--PAT. M OR L	0.85	2.43	4.67	1.84	6.18	5.73	5.12	2.29
IDLE--OTHER	0.41	0.48	0.42	4.91	6.43	3.64	4.88	8.29
SUPER HYGIENIST	0.00	0.00	1.16	0.38	0.94	0.17	0.31	0.00
OTHER N. P.	0.00	0.00	0.00	0.00	4.81	7.24	5.74	6.01
NUMBER OF DAYS	55	57	57	24	32	45	25	22
NON-PRODUCTIVE TIME	22.0%	27.1%	36.3%	40.6%	40.5%	46.2%	39.1%	43.1%

* Data taken from Appendix E of the Prince Edward Island Dental Division. Department of Health. The Prince Edward Island Dental Manpower Study. Final Report; (study undertaken for the ... Department by) R. G. Romcke and D. W. Lewis. Charlottetown, P. E. I. : The Department, July 1972

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